

C L A I M S

1. A microfluidic device comprising an MS-analyte presentation unit for a EDI-MS apparatus, said unit comprising an essentially planar support plate which on one side has one, two or more ports (MS-ports) comprising an area (EDI area) for presenting the MS-analyte to a mass spectrometer, said EDI area comprising a layer I of conducting material, **characterized** in that layer (I) has a conductive connection and/or that there is a calibrator area in the proximity of the MS-port.  
5
- 10 2 . The microfluidic device of claim 1, **characterized** in that there are two or more EDI areas and in that layer (I) of each EDI area is part of a common continuous conducting layer.
- 15 3. The microfluidic device of claim 1, **characterized** in that layer (I) is covered by a non-conducting layer (layer II).  
4. The microfluidic device of claim 1, **characterized** in that there are two or more EDI areas and in that layer (II) of each EDI area is part of a common continuous non-conducting layer.  
20
5. The microfluidic device of claim 1, **characterized** in that layer (I) is exposed in the MS-port at the surface of the EDI area, or embedded in the EDI area below said surface, or exposed at the bottom of the device.
- 25 6. The microfluidic device of claim 1, **characterized** in that there are two or more microchannel structures, each of which comprising an EDI area and being covered by a lid which may or may not have an opening above an EDI area.
7. The microfluidic device of claim 6, **characterized** in that said lid is removable.  
30

8. The microfluidic device of claim 6, **characterized** in that said lid comprises a common conducting layer including the connection for electricity an opening above each of the EDI areas.
- 5 9. The microfluidic device of claim 1, **characterized** in that the device is in form of a disc, which preferably is circular, and that said microchannel structures are oriented radially in the disc and arranged annularly around a spinning axis of the disc.
- 10 10. The microfluidic device of claim 9, **characterized** in that each of said microchannel structures comprises a sample inlet port at an inner position and the MS-port at an outer position.
11. The microfluidic device of claim 1, characterized in that EDI is LDI such as  
15 MALDI.